

We claim:

1. A scanner, comprising:

a beam generator operable to generate a scan beam;

5 a beam-reflector assembly having a first magnet and operable to sweep the scan beam; and

a beam-sweep mechanism having a second magnet and operable to activate the beam-reflector assembly by exerting a first force on the first magnet with the second magnet.

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2. The scanner of claim 1 wherein the beam generator comprises a laser diode.

3. The scanner of claim 1, further comprising a beam detector operable to  
15 read the return beam reflected from a target.

4. The scanner of claim 1 wherein the beam-reflector assembly:  
comprises a multi-faceted mirror that is operable to reflect the scan beam onto a target; and

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is operable to rotate the mirror to sweep the scan beam across the target when the beam-reflector assembly is activated by the beam-sweep mechanism.

5. The scanner of claim 1 wherein the beam-sweep mechanism causes the beam-reflector assembly to rotate back and forth by exerting the first force on the first  
25 magnet with the second magnet.

6. The scanner of claim 1 wherein the beam-sweep mechanism causes the beam-reflector assembly to rotate back and forth and damps the rotation by exerting the first force on the first magnet with the second magnet.

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7. The scanner of claim 1 wherein the beam-sweep mechanism deactivates the beam-reflector assembly by exerting a second force on the first magnet with the second magnet, the second force being opposite to the first force.

5 8. The scanner of claim 1 wherein before activating the beam-reflector assembly, the beam-sweep mechanism is operable to retain the beam-reflector assembly in a home position by exerting a second force on the first magnet with the second magnet, the second force being opposite to the first force.

10 9. The scanner of claim 1 wherein the beam-sweep mechanism:  
causes the beam-reflector assembly to rotate back and forth by exerting the first force on the first magnet with the second magnet; and  
causes the beam-reflector assembly to return to a home position by exerting a second force on the first magnet with the second magnet, the second force being  
15 opposite to the first force.

10. A scanner, comprising:  
a beam generator operable to generate a scan beam;  
a beam detector operable to read a return beam reflected from a target;  
20 a beam-reflector assembly having a mirror and a first magnet, the mirror operable to sweep the scan beam across the target; and  
a beam-sweep mechanism having a second magnet and operable to,  
retain the mirror of the beam-reflector assembly in and return the mirror to  
a home position by attracting the first magnet with the second magnet, and  
25 rotate the mirror of the beam-reflector assembly back and forth in an underdamped manner by repelling the first magnet with the second magnet.

11. The scanner of claim 10 wherein the mirror of the beam-reflector assembly is operable to direct the return beam to the beam detector while sweeping the  
30 scan beam across the target.

12. The scanner of claim 10, further comprising a button that is coupled to the beam-sweep mechanism and that is operable to:

cause the beam-sweep mechanism to rotate the mirror of the beam-reflector assembly back and forth when pushed; and

cause the beam-sweep mechanism to retain the mirror of the beam-reflector assembly in or return the mirror to the home position when released.

13. The scanner of claim 10, further comprising:

a button; and

a trigger mechanism coupled to the button and the beam-sweep mechanism and operable to:

cause the beam-sweep mechanism to rotate the mirror of the beam-reflector assembly back and forth only when the button is pushed a first predetermined distance from a button-released position; and

cause the beam-sweep mechanism to return the mirror of the beam-reflector assembly to the home position only when the button is released a second predetermined distance from a button-pushed position.

14. The scanner of claim 10, further comprising:

a button; and

a trigger mechanism coupled to the button and the beam-sweep mechanism and operable to:

cause the beam-sweep mechanism to initiate rotation of the mirror from the home position only when the button is pushed with at least a first predetermined force; and

cause the beam-sweep mechanism to return the mirror to the home position only when the pushing force on the button drops to or below a second predetermined force.

15. A scanner, comprising:  
a beam generator operable to generate a scan beam;  
a beam-reflector assembly having a first magnet and operable to sweep the scan  
beam; and

5 a beam-sweep mechanism having a second magnet configured for mechanical  
movement between a first position in which the second magnet attracts the first magnet  
and a second position in which the second magnet repels the first magnet.

10 16. The scanner of claim 15 wherein the beam generator comprises a laser  
diode.

17. The scanner of claim 15 wherein the beam-reflector assembly comprises  
a rotatable mirror.

15 18. The scanner of claim 15, further comprising a button coupled to the  
beam-sweep mechanism, the button designed to be pushed with an operator's thumb.

20 19. The scanner of claim 15 wherein the beam-sweep mechanism causes the  
beam-reflector assembly to sweep the scan beam when the second magnet repels the  
first magnet.

25 20. The scanner of claim 15 wherein the beam-sweep mechanism causes the  
beam-reflector assembly to remain in or to move to a home position when the second  
magnet repels the first magnet.

30 21. A method, comprising:  
generating a scan beam;  
sweeping the beam across a target by exerting a first magnetic force on a beam  
reflector.

22. The method of claim 21, further comprising reading a return beam reflected from the target by exerting the first magnetic force on the beam reflector.

5 23. The method of claim 21 wherein sweeping the beam comprises exerting the first magnetic force to rotate the beam reflector back and forth.

24. The method of claim 21 wherein sweeping the beam comprises exerting the first magnetic force to rotate the beam reflector back and forth and to dampen the rotation.

10 25. The method of claim 21, further comprising returning the beam reflector to a home position after sweeping the beam by exerting a second magnetic force on the beam reflector.

15 26. A method, comprising:  
retaining a mirror in a home position with an attractive magnetic force;  
rotating the mirror back and forth with a repelling magnetic force to sweep a scan beam across a target and to direct a return beam reflected from the target to a beam detector; and  
20 returning the mirror to the home position with the attractive magnetic force.

27. The method of claim 26 wherein:  
rotating the mirror comprises pushing a button; and  
returning the mirror comprises releasing the button.

25 28. The method of claim 26 wherein:  
rotating the mirror comprises rotating the mirror only when a button is pushed a first predetermined distance from a button-released position; and

returning the mirror comprises returning the mirror to the home position only when the button is released a second predetermined distance from a button-pushed position.

5           29.    The method of claim 26 wherein:

rotating the mirror comprises rotating the mirror only when a button is pushed with at least a first predetermined force; and

returning the mirror comprises returning the mirror to the home position only when the pushing force on the button drops to or below a second predetermined force.

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